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# QUICK SET-UP

*The following steps will quickly lead you through set-up and adjustments for the projector connected to a single computer. The sequence numbers refer to the drawing of the quick set-up. Before connecting, please remember to switch off the computer and disconnect the projector power cord.*

## SETTING UP

**POWER OFF (1)**
Switch off all equipment before connecting.

**COMPUTER (2)**
Connect to the computer graphics port. Use an optional MAC adapter if needed.

**SOUND (3)**
Connect sound from the computer using an optional 3.5 mm stereo jack cable.

**MOUSE (4)**
Connect to the PS/2 mouse port. Use optional cable and adapters for MAC or serial mouse.

**VIDEO (5)***
Connect video. Use a SCART adapter if needed.

**MAINS (6)**
Connect the power cord.

**POWER ON (7)**
First switch on the projector, then the source equipment for correct recognition of the projector.

## USE

**ZOOM , FOCUS AND POSITION**
Zoom the lens for desired image size, focus the lens for an optically sharp image and tilt the unit using the integral adjustable feet to position the image on screen.

**RESET**
Press RESET to automatically adjust for position, width and stability. RESET is automatically invoked when a new source is connected.

**CONTRAST AND BRIGHTNESS**
Adjust CONTRAST and BRIGHTNESS as preferred.

* Video version only

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****** ILLUSTRATION, QUICK SETUP ******

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# 1 INTRODUCTION

Thank you for purchasing this state of the art SVGA ultra portable projector!

For long and lasting, safe and secure operation, please read this user guide, and follow the instructions given. Failing to do so may cause product failure that could void any warranties given, and in some cases be harmful and dangerous to people.

For the experienced user, a quick set-up guide is included at the beginning of this manual.

Please retain this user guide for future reference.

*All references to video/video interface/video connections made in this document only apply to the Video version of the SVGA LCD Projector.*



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# 2 SYMBOL DESCRIPTIONS

**DANGEROUS VOLTAGE**
This symbol indicates the presence of high voltages inside the product. High voltages may constitute electric shock and may be lethal.

**WARNING**
This symbol alerts the user of important operating, maintenance (servicing) and safety-related instructions.

**HOT**
This symbol indicates hot surfaces.

**NOTE**
This symbol is used to highlight specific information for the user.



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# 3 SAFETY INSTRUCTIONS

*The following list of instructions is provided to ensure safe and risk free use and operation of the projector. Failing to read and follow these instructions may void any warranties and may also cause personal injury and material damage.*

1. **READ INSTRUCTIONS** - All safety and operating instructions should be read before the projector is operated.

2. **RETAIN INSTRUCTIONS** - The safety and operating instructions should be retained for future reference.

3. **HEED WARNINGS** - All warnings on the projector and in the User Guide should be adhered to. If ignored, use of this projector may cause death, injury or material damage.

4. **CABLES AND CORDS** - Use only original cables and cords as supplied with the projector or as optional accessories. Using third party cables that may look identical may lead to material damage and personal injury, as the internal wiring in the cables may be different.

5. **LAMP LIFE** - The high-pressure lamp may explode if improperly used. When the lamp lifetime is exceeded, the projector will issue a warning on screen at start up, and a red indicator on the projector will light up. Change lamp with an identical spare part as described elsewhere in this User Guide.

6. **LAMP BEAM** - Do not look directly into the projector or lens when operating the projector. The lamp emits rays of strong light, which may cause eye injury and/or sunburns.

7. **WATER AND MOISTURE** - The projector is designed for indoor use only and should not be used near water and moisture.

8. **CARTS AND STANDS** - Place the projector on a stable, hard surface in a manner that does not obstruct ventilation ports and openings in the projector housing. Unstable carts, stands, tables and other arrangements may cause the projector to fall, which may cause serious injury to people and/or damaging the projector and other material.

9. **CEILING MOUNTING** - When mounting the projector in the ceiling, always ensure that all screws, bolts and other fixing devices of the ceiling mount hardware are securely in place and tightened. Use only



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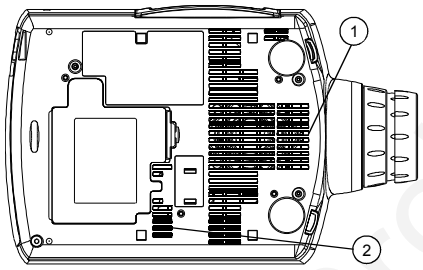
well dimensioned ceiling mounts from a renowned supplier. Connect the projector to a switched mains power supply, and switch off when not in use, for maximum protection against fire. Switching off using the remote control only puts the projector in a standby (sleep) mode with live internal voltages.

10. **VENTILATION** - Slots and openings in the projector housing are provided for ventilation. Air inlet filters are employed to reduce dust build-up internally. Periodically vacuum the filters (from the outside of the ventilation grilles) as needed. To ensure reliable operation of the projector and protection from overheating, do not block or cover slots or openings in any way. Do not insert any foreign objects or instruments into the slots and openings, as this may block the ventilation fans. Do not place the projector on a soft surface (carpet etc.). Never install the projector in an enclosed unit unless it is properly ventilated by a separate cooling system.




1 & 2 Ventilation slots

11. **HEAT** - The projector should be situated away from heat sources such as sunlight, radiators stoves or other strong heat sources. Do not operate the projector outside the maximum temperature specifications.

12. **OBJECT OR LIQUID ENTRY** - Care should be taken so that objects are not put or do not fall into the projector housing. Be careful not to spill liquids that may flow into the projector interior. Do not insert metal or flammable objects into the projector.

13. **POWER SOURCES** - The projector must only be connected to proper electrical voltage as marked on the projector body, on the label at the power inlet. The projector should be connected to the electrical outlet using a power cord compatible with the local electrical voltage. Never operate the projector outside the electrical voltage specification. If you are unsure about the type of electrical service at your location, please consult your dealer or local Power Company.



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14. **POWER CORD PROTECTION** - Power cords should be routed so that they are not likely to be walked on, pinched or unduly bent by items placed upon or against them. Pay particular attention to cords and cables at the point where they exit from the projector.

15. **GROUNDING OR POLARIZATION** - Precautions should be taken so that grounding or polarization of the projector is maintained. Do not use a three prong to a two-prong adapter.

16. **ELECTRICAL SHOCK** - To reduce the risk of electrical shock, do not open the unit. Refer all servicing to authorized personnel only.

17. **CLEANING** - The projector should be cleaned only as recommended, see the Maintenance section. Disconnect the power cord from the power outlet before cleaning. Do not use liquid, spray or aerosol cleaners.

18. **NON-USE PERIODS** - The power cord of the projector should be unplugged from the outlet when left unused for a long period of time.

19. **LAMP REPLACEMENT** - Replace projection lamp with same type and rating as shown in the Technical Data section. Allow unit to cool down before replacement.

20. **SERVICING** - The user should not attempt to perform unusual or technical service to the projector. Do not open the unit, except for the lamp replacement door. Refer all servicing to authorized personnel only. Replace damaged cords or cables with original replacement parts only.

21. **DAMAGE REQUIRING SERVICE** - The projector should be serviced by authorized personnel when:
    Objects have fallen, or liquid spilled, into the projector
    The projector has been exposed to water or moisture
    The projector does not appear to operate normally (fan not working, Noise, smell, smoke, heat etc.)
    The projector has been dropped or damaged

22. **ABNORMALITY** - If you detect any abnormal smell or smoke, immediately turn off the power switch. Disconnect the power plug from the inlet to prevent fire or electrical shock.

23. **LIFTING AND MOVING** - Let the projector cool down before moving. Disconnect the power cod and all other cables. Carry the unit by the handle provided. The projector should preferably be transported in a suitable case.



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# 4 MAIN FEATURES

The unit employs the following important features that in total provide you with a highly functional and powerful projector:

- **High brightness image**
- **Compact and light**
- **Automatic adjustments/setup**
- **Digital zoom**
- **User replaceable UHP-lamp**
- **True SVGA 800 x 600 resolution**
- **640 x 480 to 1152 x 864 image compatibility**
- **16.7 million colors**
- **Stereo sound**
- **Infrared remote control with trackball mouse emulation**
- **Comprehensive menu system**
- **On screen display (OSD)**
- **User and source settings memorized**
- **Low noise cooling system**
- **False light blocking**
- **Power down management**
- **Smooth scaling of non SVGA image**
- **Low power consumption**



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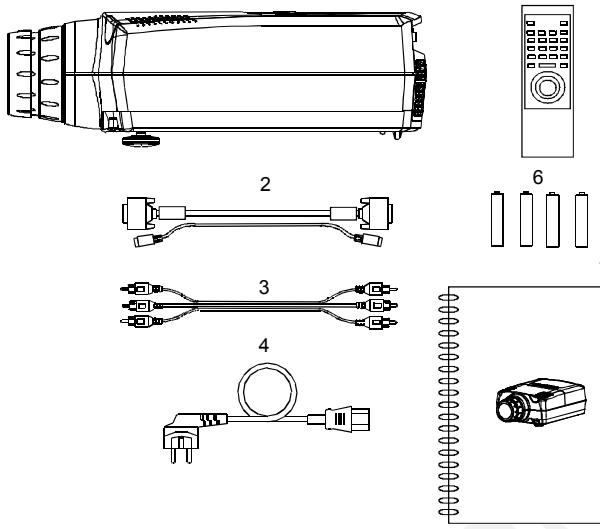
# 5 SUPPLIED MATERIAL

## 5.1 STANDARD MATERIAL

A complete set includes the following components:




1. LCD Projector
2. Computer cable w/PS/2 mouse
3. RCA Cable*
4. Power Cord
5. Remote Control
6. Batteries
7. User Guide
8. Soft Case (not shown in drawing)

* Video version only

*The standard material is subject to change without prior notice*



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## 5.2 OPTIONAL MATERIAL

Various cables, adapters and accessories are available as options. Consult your dealer for further information.

### 5.2.1 SERIAL MOUSE

In order to connect to a Serial Mouse the following is required:

- 4 meter mouse cable
- Serial Mouse adapter

### 5.2.2 MACINTOSH

In order to connect to a MAC computer the following is required:

- MAC computer adapter
- MAC monitor adapter
- 4 meter mouse cable
- MAC Mouse adapter

### 5.2.3 CEILING MOUNT

To mount the projector in the ceiling, a special ceiling mount kit is available



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# 6 MAKING THE CONNECTIONS

The projector may be connected to different equipment. The following sections describe in detail how to connect to these systems.

*See the illustration on the rear of the quick set-up card on how the various system parts connect together.*

*Be aware of static electricity that may build up in the dry season and when operating on synthetic carpets. Discharge any static electricity by touching a metallic surface before you start.*

Place the projector on a table at a suitable distance to the projection screen. Select a screen with good reflectivity and avoid direct sunlight shining in. Place the projector so that the image is visible to the whole audience, and so that the unit does not obstruct the view.

Various cables are supplied or optionally available to connect to different sources. Follow the list below in numerical order for a trouble-free set-up!

1. **SWITCH OFF** all equipment before making all the connections.

2. **COMPUTER GRAPHICS ADAPTER.**
   Computer graphics adapters use different connectors depending on the actual computer system in use. Adapters are used at the computer end for non-VGA type connections

   - **PC**. Use the computer cable directly to connect to the graphics port. If needed, connect your monitor to the MONITOR connector on the projector.

   - **MAC**. Connect the optional MAC adapter marked COMPUTER on the computer end to adapt to the graphics-port. The optional adapater marked MONITOR is connected to the monitor cable if needed.



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3. **SOUND.**
   Connect sound using an optional 3.5 mm stereo cable.

4. **MOUSE.**
   You may control the mouse directly from the wireless remote control.

   - **PS/2**. The cable connects directly, without the use of an adapter. Running the computer mouse in parallel is not possible, unless your computer itself has provision for two mice simultaneously. You may consider using the serial (RS232) adapter and run your mouse on the serial port instead, in order to be able to run your local mouse in parallel. This will require a different mouse driver setting. Please consult your computer documentation or local dealer for details.

   - **SERIAL (RS 232)**. Use the optional cable and serial adapter with a branch for the local computer mouse. The serial adapter is fitted with a 9-pin DSUB connector. Use an extra 9 to 25 pin adapter (available from your dealer) if your computer has a 25 pin serial connector. Connect your computer mouse to the free branch of the adapter if desired. With some computers, the branched adapter may not work. For this purpose, an optional straight serial adapter is available.

   - **MAC**. Use the optional cable and MAC mouse adapter to connect to the mouse port on your MAC computer.

5. **VIDEO. ***
   The video version connects directly to standard RCA (phono) connectors for sound and video. You may use a SCART adapter at the source end if needed.

6. **MAINS POWER.**
   Connect the mains cord to the projector and all other equipment in the set-up.

7. **SWITCH ON** the projector first, then the computer. It is important to switch the projector on first in order for correct detection of the projector as a display and mouse peripheral device to the computer.



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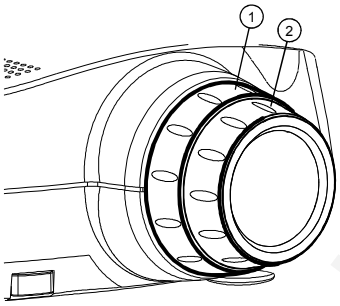
# 7 IMAGE ADJUSTMENTS

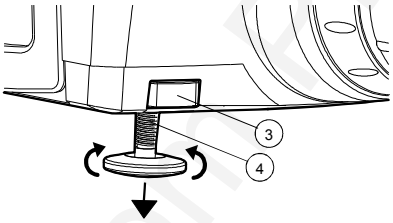
This section will aid in adjusting a stable, flicker-free image for best viewing results.

Use the remote control or the projector keypad to adjust settings, either directly or through the menu system.

*The following list aids in a trouble free set-up of the projector. Try using a patterned background (tiles, checkerboard pattern etc) when adjusting the image.*




1. Zoom
2. Focus




3. Foot release button
4. Adjustable foot

1. **ZOOM, FOCUS AND POSITION IMAGE**. The projection lens has a manually adjustable zoom and focus. Place the projector at a suitable distance to the projection screen; alternatively zoom the image, to obtain the desired screen size. (See the Technical Data section for max and min projection distances.) Focus the image and observe that the picture elements (pixels) become sharp on screen. The projector has two



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adjustable feet in the front, so that the image can be shifted to a desired height on the wall. Tilt the projector body in the desired position and press the foot-release buttons. If necessary, fine adjust the height by screwing the feet either direction.

2. **RESET** in most cases automatically adjusts the image position, width (FREQUENCY) and stability (TUNE). If RESET fails to adjust the image correctly, see FREQUENCY, POSITION and TUNE below. RESET is automatically activated when a new source is connected.

3. **CONTRAST** and **BRIGHTNESS** may be adjusted according to your personal taste, the image and the viewing conditions. The controls are directly accessible on the remote control and on the projector keyboard.

4. **FREQUENCY**. The frequency controls the width of the image. A wrong frequency setting can be seen as equally spaced, vertical stripes or irregularities in the pattern displayed. Press the MENU key, SET-UP, FREQUENCY and press ENTER. Adjust the value up or down using the trackball or keyboard cursor controls, observing that the amount of vertical stripes reduces, until the distortion is gone. You may still have an unstable image, please see the next section.

5. **POSITION** the image correctly by accessing SET-UP, POSITION, then press ENTER and adjust position with the trackball or keyboard cursor controls

6. **TUNE** the image for a stable projection. In the menu, select SET-UP, TUNE and press ENTER. Adjust stability using the trackball.

Set-up should be done once with the source(s) you are using most frequently. Allow some minutes for the unit to warm up before adjusting the settings. Most settings will be memorized individually for each source for future use.



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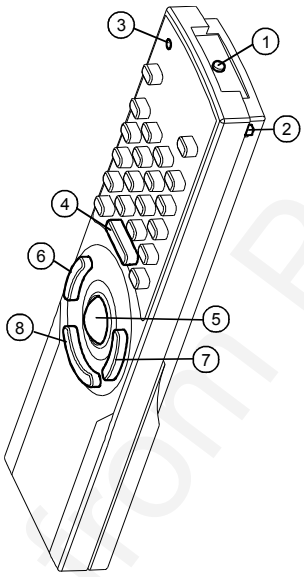
# 8 USING THE PROJECTOR

The projector has a set of features and functions you should familiarize with in order to get the most out of using the unit.

## 8.1 REMOTE CONTROL

The remote control is used to adjust the projector for the best possible image, either directly or through the menu system. It is also used during presentations for computer mouse control and with special presentation tools.

*The remote control may be pointed directly at the projector front or rear, where the receivers are situated, or indirectly by pointing at the projection screen. When pointing at the screen, point at an angle that reflects the beam towards the projector.*




1. Wire Connection*
2. ON/OFF Switch
3. LED Indicator
4. Light Key
5. Trackball
6. Left Key (Enter)
7. Right Key
8. Bottom Key (Drag)

* Not applicable for this product



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The trackball is by default controlling the computer mouse (if the mouse cable is connected properly). With some functions, like POINTER, MASK and in the menu system, the mouse control is disabled.

In the menu system, the trackball is used for navigation between the different alternatives, and when a function is selected, the trackball is used for adjustment of that function.

Turn on the remote control by sliding the ON/OFF-switch to ON position. To avoid draining the batteries, turn the remote control OFF after use.

### 8.1.1 REMOTE CONTROL KEYS

The following table describes each key in detail. Some functions are memorized, while other functions are only momentary.

The MEM column indicates whether the function setting is memorized.

| | | |
|---|---|---|
| **ON/OFF** | Switches the remote control on/off (battery save) | |
| **CONTR** | Adjusts contrast. | **MEM** |
| **BRIGHT** | Controls brightness. | **MEM** |
| **VOLUME** | Adjusts audio sound volume. | **MEM** |
| **POWER** | Turns the projector into either operating or standby mode. In standby mode the projection lamp is switched off. | |
| **RESET** | Automatically adjusts the image correctly | |
| **MASK** | Applies a mask to the image, which can be moved up and down using the trackball. | |
| **PROG** | This key may be programmed to any one of the menu controls. | **MEM** |
| **MUTE** | Switches the sound on/off. | |
| **FREEZE** | Holds the image projected on the screen. | |



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| | |
|---|---|
| **COMPUTER** | Selects computer as the active source. |
| **VIDEO *** | Selects video as the active source. |
| **S-VIDEO *** | Selects S-video as the active source. |
| **AUX **** | Selects optional auxilliary input as the active source. |
| **POINTER** | Applies a trackball-controlled pointer to the screen. |
| **ZOOM** | Press to zoom in on the image. Use the trackball to zoom in or out. Change the zoom area by using PAN. |
| **PAN** | Allows panning within oversized (zoomed) images using the trackball. |
| **LIGHT** | Press to illuminate the keypad. |
| **MENU** | Invokes the menu system. |
| ***TRACK-BALL*** | The trackball is mainly used to control the mouse pointer (if the mouse cable is attached properly). When ZOOM, MASK, PAN or MENU is invoked, mouse control is disabled, as the trackball is used to control these functions instead. Trackball sensitivity, except for the mouse, is set under OPTIONS in the menu system. Mouse sensitivity is set at your computer as with the standard mouse. |
| ***RIGHT*** | Emulates the right mouse key. |
| ***BOTTOM/ DRAG*** | This emulates the “click-and-hold” function of the desktop mouse.<br>Use BOTTOM/DRAG key instead of RIGHT key when connected to a Macintosh computer. |
| ***LEFT/ ENTER*** | Emulates the left mouse key.<br>Once the menu is accessed selections are confirmed using LEFT/ENTER key. |

* Video version only.
** Only when auxilliary adapter is fitted



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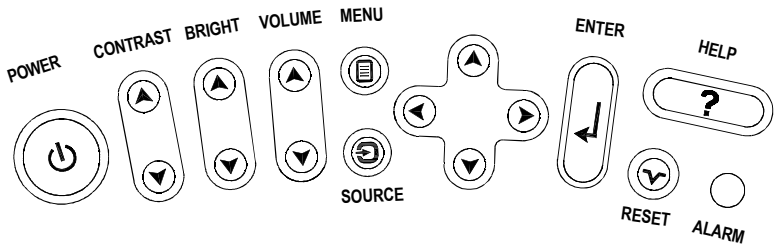
## 8.2 PROJECTOR KEYBOARD AND INDICATORS

The keypad on the projector gives access to all controls, either directly or through the menu system.




### 8.2.1 KEYBOARD KEYS

| | | |
|---|---|---|
| **POWER** | Turns the projector into either operating or standby mode. In standby mode the projection lamp is switched off. | |
| **CONTRAST** | Adjusts contrast, the ratio between light and dark colors. | **MEM** |
| **BRIGHT** | Adjusts brightness, the whiteness of the image, which can be altered to suit local lighting conditions. | **MEM** |
| **VOLUME** | Volume of the audio output can be altered to suit local conditions. | **MEM** |
| **MENU** | Invokes the menu system. | |
| **SOURCE** | Toggles between available input ports. | |
| ***CURSOR KEYS*** | The cursor keys are used to navigate in the menu system. | |
| **ENTER** | Emulates the left mouse key.<br>Once the menu is accessed selection are confirmed using ENTER. | |
| **HELP** | Enters help-section in menu | |
| **RESET** | Automatically adjusts the image correctly | |



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### 8.2.2 INDICATORS

**POWER**

- NO LIGHT indicates that the unit power cord is disconnected.
- GREEN FLASHING indicates that the POWER key has been pressed and the fan is starting.
- GREEN indicates that the unit is operational.
- YELLOW indicates that the unit is in standby mode (switched off using the remote control or the keypad)
- YELLOW FLASHING when the POWER key is pressed to switch the projector off (fan runs/lamp switched off).

**ALARM**

- RED indicates lamp lifetime overdue.
- RED FLASHING when the projector is overheated.



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## 8.3 THE MENU SYSTEM

The menu system is designed to gain access to functions not often used, as opposed to frequently used features that are directly available through the remote control and the projector keypad.

- Press the MENU key to invoke or exit from the menu system. The MENU is also switched off after one minute of inactivity. Most settings are memorized unless otherwise noted.

- When the menu is active, the trackball is used to navigate between options (and therefore is not available for mouse control etc. at the same time). The ENTER key is used to activate or deactivate a function.

- Toggle functions (like OSD, REAR etc) are tagged when active and untagged when not active.

- Increase/decrease functions (like TUNE and FREQUENCY etc) are adjusted using the trackball or keyboard cursor controls. The OSD field (in the lower left corner of the screen) indicates the actual settings.

- The PROG key may be assigned to any of the menu functions.

The main menu selections SETUP, SOUND, OPTIONS and HELP are explained in detail below.

Features available with some sources only are shown in grey color characters, while generally available functions are in normal case.



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### 8.3.1 THE SETUP MENU SELECTIONS

| | | |
|---|---|---|
| **TUNE** | Is used to stabilize the image. An untuned image can be seen as sideways instability or “swimming”. | **MEM** |
| **FREQUENCY** | Is provided to adjust image width. Generally, an incorrect frequency setting can be observed as an image too wide or too narrow, combined with vertical, unstable bands. | **MEM** |
| **POSITION** | Due to minor variations in graphic cards, the horizontal and vertical position may need adjustment. Select POSITION, then press LEFT and use the cursor keys or trackball. | **MEM** |
| **REAR** | Inverts the image for use in rear projection arrangements i.e. projection from the back of a screen. | **MEM** |
| **CEILING** | Switches between an upright and an upside-down projection by flipping the image vertically. | **MEM** |
| **COLOR TEMP.** | (Color Temperature) adjusts the red and blue color components. | **MEM** |
| **FACTORY RESET** | This function resumes factory settings of all parameters. | **MEM** |

### 8.3.2 THE PICTURE MENU SELECTIONS

These functions are only active for video sources.

| | | |
|---|---|---|
| **TINT** | Controls the hue of an image, and is only active in NTSC-video. | **MEM** |
| **SHARPNESS** | Controls the sharpness of the lines in an image. | **MEM** |
| **COLOR** | Adjusts color saturation. | **MEM** |
| **16 : 9** | Switches between standard 4 : 3 format and 16 : 9 Widescreen format. | **MEM** |



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### 8.3.3 THE SOUND SELECTIONS

| | | |
|---|---|---|
| **TREBLE** | Controls the higher sound range. | **MEM** |
| **BASS** | Controls the lower sound range. | **MEM** |
| **BALANCE** | Controls the sound balance between the two stereo speakers. | **MEM** |
| **MUTE** | Switches the sound on/off separately for each source. | **MEM** |

### 8.3.4 THE OPTIONS SELECTIONS

| | | |
|---|---|---|
| **ZOOM** | Use the trackball or the cursor keys on the projector keyboard to zoom in or out. Change the zoom area by using PAN. | |
| **PAN** | Allows panning within oversized images using either the keyboard cursor keys or the remote control trackball. | |
| **HIDE OSD** | Switches the on-screen echoing of controls on and off. This setting only affects the direct control operations, not the menu system | |
| **SOURCE SEARCH** | A toggle function that control whether or not the projector shall automatically search for an active source on the other input ports when the selected source is not active.<br>Manual source selection is maintained in both modes. | **MEM** |
| **POWER MANAGEMENT** | System initiating power down of the projector to avoid image imprint on the module. Refer to the Projector Keyboard section for details. | **MEM** |
| **RS232** | Controls the serial interface of the MOUSE port. MOUSE (default) and CONTROL* are available options. | **MEM** |
| **TRACKBALL SENSITIVITY** | Controls the response of the remote control trackball in the menu system. FAST, MEDIUM and SLOW are available options.<br>(These functions do not affect the response of | **MEM** |



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| | | |
|---|---|---|
| | the computer mouse. If you want to adjust the mouse sensitivity, please do this on the computer). | |
| **LANGUAGE** | A selection of languages is available for the menu options, including :<br>English, German, French, Italian, Spanish, Norwegian, Japanese, Korean and Chinese. Other languages may apply | **MEM** |
| **POINTER** | Selects the pointer appearance. Options include BALL, ARROW and CROSS. Other shapes may apply. | **MEM** |
| **MASK** | Selects whether the mask is applied downwards or upwards. | **MEM** |
| **SPLIT SCREEN** | Selects between ordinary full screen and split screen, which is used to project a large image with four projectors. Options include NONE, UPPER LEFT, LOWER LEFT, UPPER RIGHT and LOWER RIGHT. | **MEM** |
| **SERVICE** | Is used to reset the lamp timer. | **MEM** |

* For more information on RS232 control, contact your local dealer or consult the manufacturers' home page.

### 8.3.4 THE HELP SELECTIONS

| | |
|---|---|
| **SOURCE INFO** | Provides a status list of parameters relating to the source selected. |
| **ABOUT** | Provides system information about the projector. |



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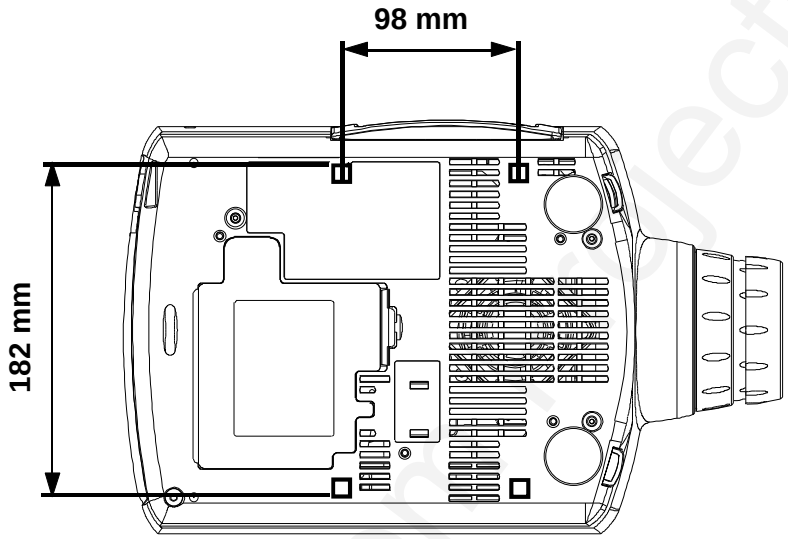
# 9 CEILING MOUNTING

The projector is prepared for ceiling mounting. As opposed to desktop use (most tables are approx. 80 cm tall, are flat and have a hard surface finish), ceilings vary in height and material. Also considerations must be made with respect to signal and power wiring.

## 9.1 SELECTING A MOUNT

Various mounting systems are available from different sources. Contact your dealer for further details or consult vendor catalogs. Be sure that the vendor has tested the mount with this specific projector for operational safety. Check that the mounting brackets fit the integral mounts of the projector (illustration below), and that the ventilation slots are not blocked.



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## 9.2 MOUNTING IN THE CEILING

*An improperly mounted projector is a potential danger to people and equipment. A projector and mount falling down may cause personal injury and material damage. Such damage caused by bad workmanship in mounting and operation may lead to legal action and should be avoided.*

*Avoid ceiling mounting of the projector in areas of frequent or probable earthquakes.*

When fixing the mount in the ceiling, be sure to check the ceiling material and if it will hold the total weight of the mount and the projector. Look for wood, steel beams or concrete that will secure a good and lasting fixture. Avoid plaster or other fragile materials that do not have sufficient structural properties. Follow the detailed instructions supplied with the ceiling mount for proper mounting and operation.

After having mounted the projector in the ceiling, test if the holding force is sufficient by adding a load to the mount at least double the weight of the combined projector and mount. The mount should hold this extra weight with no sign of fatigue and with no sign of mounting screws loosening.

## 9.3 WIRING

Ceiling mounted projectors require long signal and power wires. The signals should be wired using high quality coaxial cable. The cables usually need to be customized. Some vendors have specialized in this field. Contact your dealer for further detail.

If the signal cables run over a longer distance from the source to the projector, a line buffer (distribution amplifier) may be needed (available from third party vendors).

*For potential fire reasons, the power wiring should be separately switched so that the projector can be switched off completely when not in use. The ON/OFF on the remote control only suspends operation of the projector without switching off completely.*



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# 10 TROUBLE-SHOOTING

This is a checklist to help you pinpoint any problem that may arise. Check the symptoms carefully if you experience any problem. The cure may be at your fingertips!

*Always check that the red LED indicator in the front of the projector flashes when a key on the remote control is pressed. This indicates that the projector is receiving signals from the remote control.*

*Be aware that the projector has to cool down for 30 seconds after entering standby-mode, before it can be turned back on again.*

***The projected image is completely black.***

- The unit may have overheated due to the ventilation slots being covered while the projector was in use. Also ensure that the ambient temperature is within spec.
- Check the air inlet filters, as they may need vacuuming (see *Maintenance*). Wait until the unit has completely cooled down before using again.

***The projector is only displaying logo.***

- Check if a source is connected.

***The projected image is too dark or too light.***

- Adjust the CONTRAST and BRIGHTNESS settings.
- Push HELP to view the setup picture/information.
- Press RESET, which will remove the pre-determined settings for the current source, and make the setup adjustments again.

***Some colors are unstable or flickering***

- Try to improve the tuning by accessing TUNE in the menu system.
- Check first that there are no loose cable connections, or any bent pins in the cable connector.
- You can try to adjust the image quality with the CONTRAST and BRIGHTNESS keys.



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***The whole image appears to be unstable or misplaced***

- Press reset.
- Adjust the frequency and tuning settings (instability), or the image position settings (misalignment).
- Check that you are using a source with compatible resolution.
- The projector may be connected to a source with a non-standard computer (or video card). Adjust the frequency and position of the image.

***Cooling fan is not working when lamp is lit***

- If the fan does not work the projector must not be used and should be returned to your dealer for repair.

***The remote control is not working***

- The red LED on the remote control should flash when transmitting. If not, check the ON/OFF switch or the batteries.
- Make sure you point the remote control at the projection screen or directly at the IR receivers. The front red LED indicator flashes when receiving signals from the remote.
- The maximum range of the IR transmitters is 15m (50 feet) - Are you standing close enough?
- If the effective range of the transmitters is significantly reduced, the remote control needs new batteries.

***The desktop mouse is not working***

- Remember to follow this sequence when connecting the mouse:
  - Connect the mouse cable.
  - Connect the projector power cable
  - Power on the computer
- You must boot the computer after the cable has been connected for it to recognise the mouse. If you are unsure whether this was the case, reboot your computer.
- Are the mouse cable (and mouse adapter) connections secure?
- Check the mouse driver settings on the computer



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# 11 MAINTENANCE

The projector needs very little maintenance in order to function properly.

## 11.1 GENERAL

Use a damp cloth to wipe off dust on the exterior. Clean the lens with a damp, non-abrasive cloth, using just water or a standard lens cleaning solution available from photographic dealers.

*Vacuum the air inlets periodically, especially when build-up of dust is observed. This will ensure cool operation of the unit.*

Do not scratch the lens surface. Use the lens cap when the projector is not in use for added protection. Remember to remove the lens cap before operating the unit!

## 11.2 LAMP REPLACEMENT

The projector is using a custom UHP-lamp for illumination. The lamp is high pressure when hot (operating or immediately after switch-off). Lamp pressure is normal when cold.

A lamp timer is available in the menu system under HELP, ABOUT, that may be used to track lamp operating time. The user may reset the timer.

*Disconnect the power cord before opening the lamp lid to change the lamp.*

1. To change lamp, remove the lamp lid by pressing in the snap lock and lifting up (see illustrations below). A safety switch will cut off the power supply to the lamp completely.
2. Unscrew the 2 safety screws holding the lamp holder, fold out the handle and pull out the old lamp holder.
3. Insert a new lamp holder/lamp all the way until it positively stops, fold the handle and reverse the procedure above.

*Use only original lamp and holder as specified. The lamp is individually adjusted with the holder to maintain optimum illumination. Replacement using a different lamp may result in poor illumination, malfunction (potentially explosion) and will void any warranties.*



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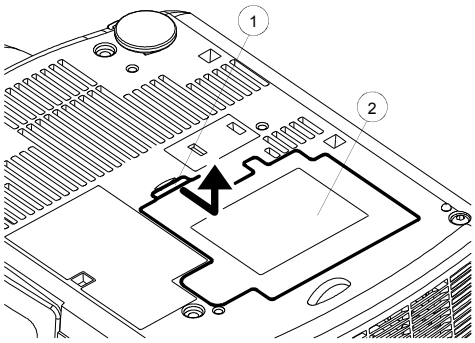
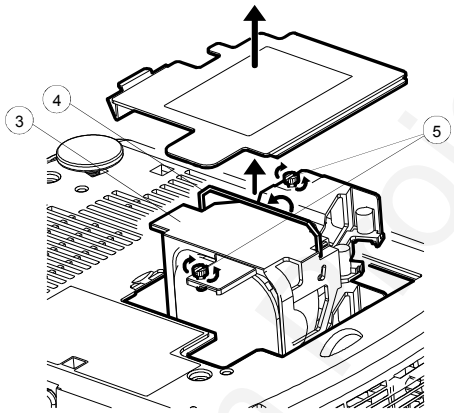



1. Snap lock
2. Lamp lid




3. Lamp assembly
4. Handle
5. Securing screws

To reset the lamp timer, invoke the menu system under OPTIONS, SERVICE, and LAMP TIMER RESET. You need to confirm that you actually intend to reset the lamp timer, or cancel if you accidentally invoked the function.



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## 11.3 THE REMOTE CONTROL

The infrared remote control requires little maintenance.

The trackball element may be cleaned occasionally with a damp (not wet) cloth. To take out the ball, twist the ring holding the ball anti-clockwise. Having taken out the ball, you may also clean the trackball interior using a damp (not wet) cotton swab.

To change the batteries, open the battery holder on the rear of the handset. Remove the old batteries and dispose of carefully. Insert new batteries of the type described in the *Technical Data* section, observing the polarity instructions inside the battery holder, and close the snap lock door. Switch the remote control back on by using the ON/OFF-switch on the right hand side of the remote. Test that the remote control functions correctly by pressing the LIGHT key to see if the backlighting operates properly.



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# 12 TECHNICAL DATA

*The technical data given in this section was correct at the time of going to print, but may change without prior notice in order to improve product performance.*

This projector is designed for indoor use and should not be operated or stored in conditions outside the general environmental limits given in section below, as this may lead to permanent damage and will violate any warranties.

## 12.1 GENERAL ENVIRONMENTAL LIMITS

| | |
|---|---|
| **STORAGE TEMPERATURE** | -20 - 60°C (-4 - 140 F), sea level |
| **STORAGE HUMIDITY** | 10 - 90 % relative humidity, non-condensing |
| **OPERATING TEMPERATURE** | 10 - 35°C (50 - 95 F) ambient, sea level |
| **OPERATING HUMIDITY** | 20 - 80 % relative humidity |

*Allow for slow acclimatization after storing at extreme temperatures and humidities, to avoid condensation. Should condensation appear, leave the projector unit in a controlled environment within the operating limits until the condensation has evaporated before using the projector.*



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## 12.2 PROJECTOR UNIT

| | |
|---|---|
| **PROJECTOR DIMENSIONS (H x W x L)** | 113 x 225 x 313 (358 incl. lens) mm<br>45 x 89 x 123 (141incl. lens) inch |
| **PROJECTOR WEIGHT** | 3.5kg / 7.7 lbs. |
| **PROJECTION LENS** | Manual zoom and focus lens<br>1.3 zoom ratio<br>f 38-49 mm<br>F 1.7-2.0 |
| **IMAGE SIZE** | 0.65 - 7.62 m / 25 - 300 inches (wide)<br>0.48 – 7.62 m / 19 - 300 inches (Tele) |
| **PROJECTION DISTANCE** | 1.2 – 15.6 m / 3.9 – 51.2 ft |
| **ANTI-KEYSTONE CORRECTION** | 8 - 11 degrees |
| **PROJECTION LAMP** | 120 W UHP |
| **LIGHT OUTPUT** | 650 ANSI lumen |
| **LIGHT VALVE** | 3 x 0.9” polysilicon TFT LCD |
| **COLOR RESOLUTION** | 16.7 MILLION |
| **CONTRAST RATIO** | 300:1 |
| **PIXEL RESOLUTION** | 800 x 600 x 3 |
| **DEFECTIVE PIXELS** | 15 (max) |
| **VIDEO FREQUENCY** | 12 - 150 MHz |
| **HORIZONTAL SYNC** | 15 - 100 KHZ |
| **VERTICAL SYNC** | 43.5 - 130 HZ |
| **COMPUTER INPUT** | 0 - 1 Vpp |
| **AUDIO INPUT** | 1V RMS |
| **SPEAKERS** | 2 x 1 W speakers |
| **CONFORMANCE** | • CE<br>• UL<br>• CUL<br>• FCC, Subpart J, Part 15 |



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## 12.3 POWER SUPPLY

| | |
|---|---|
| **DUAL VOLTAGE** | 100 - 120 VAC, 60 Hz, +/- 10 %<br>220 - 240 VAC, 50 Hz, +/- 10 %<br>200 W OPERATING, 15 W STANDBY |

## 12.4 REMOTE CONTROL

| | |
|---|---|
| **UNIT SIZE (H x W x L)** | 20 x 50 x 190 mm / 0.78 x 1.97 x 7.48 inch |
| **UNIT WEIGHT** | 100 g / 0.22 lb. (with batteries) |
| **BATTERIES** | 4 pcs LR03/AAA 1.5V penlight |
| **FUNCTIONAL RANGE** | 15 m (50 ft) |
| **COMPATIBILITY** | Microsoft 2-key serial; MAC; PS/2 |
| **CONFORMANCE** | CE, FCC |

## 12.5 COMPATIBILITY

The projector is compatible with the interfaces and resolutions shown below, some of which are predefined. However since different varieties of these exist, a frequency adjustment may be needed.

| | |
|---|---|
| **VGA** | 640 x 350 |
| | 640 x 400 |
| | 640 x 480 |
| | 720 x 400 |
| **SVGA** | 800 x 600 |
| **XGA** | 1024 x 768 (compressed) |
| **MAC** | 640 x 480 |
| | 832 x 624 |
| | 1024 x 768 |
| | 1152 x 870 (compressed) |
| **NTSC** | 640 x 480 |
| **PAL/ SECAM** | 768 x 576 |



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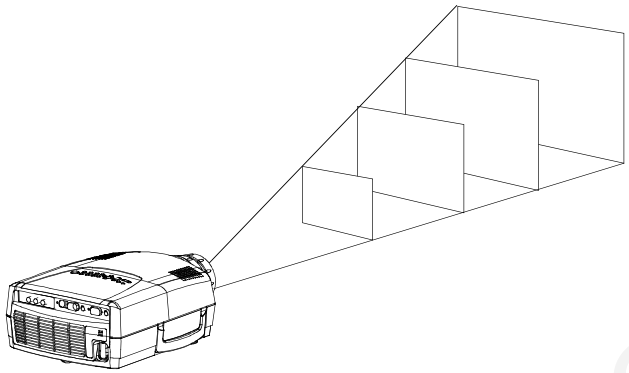
## 12.6 PROJECTION DISTANCES

The following table shows the combinations of projection distances and screen sizes that are possible.



| | MINIMUM | | | MAXIMUM |
|---|---|---|---|---|
| **WIDE** | | | | |
| **DISTANCE** | *1.00m/ 39"* | *3.20m/ 126"* | *5.60m/ 220"* | *12.00m/ 472"* |
| **DIAGONAL** | *0.63m/ 25"* | *2.00m/ 80"* | *3.56m/ 140"* | *7.62m/ 300"* |
| **WIDTH** | *0.51m/ 20"* | *1.63m/ 64"* | *2,84m/ 112"* | *6.10m/ 240"* |
| **HEIGHT** | *0.38m/ 15"* | *1.22m/ 48"* | *2.13m/ 84 "* | *4.57m/ 180"* |
| **TELE** | | | | |
| **DISTANCE** | *1.00m/ 39"* | *3.10m/ 122"* | *5.30m/ 209"* | *15.60m/ 614 "* |
| **DIAGONAL** | *0.48m/ 19"* | *1.52m/ 60"* | *2.54m/ 100"* | *7.62m/ 300"* |
| **WIDTH** | *0.39m/ 15"* | *1.22m/ 48"* | *2.00m/ 80"* | *6.10m/ 240"* |
| **HEIGHT** | *0.29m/ 11"* | *0.91m/ 36"* | *1.52m/ 60"* | *4.57m/ 180"* |

Please consider the values given as nominal, with a variation of +/- 10%.



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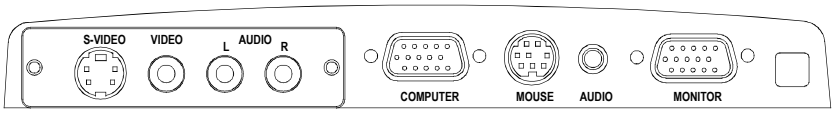
# 13 CONNECTOR PORTS

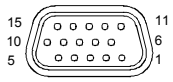
The pinouts of all the connector ports is described in this section.




*Do not connect any devices or cables other than those supplied with the projector into the connector ports on the projector unit, even if the connector ports appear identical, as this voids any warranty and may cause permanent damage to the projector.*

## 13.1 COMPUTER

This port relays all signals from the computer to the projector.

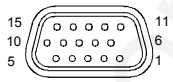



15 PIN HIGH DENSITY DSUB
FEMALE (FRONT VIEW)

| | | |
|---|---|---|
| 1 ANALOG R IN | 6 ANALOG R GND IN | 11 GND |
| 2 ANALOG G IN | 7 ANALOG G GND IN | 12 DDC/SDA |
| 3 ANALOG B IN | 8 ANALOG B GND IN | 13 HSYNC IN |
| 4 GND | 9 RESERVED | 14 VSYNC IN |
| 5 GND | 10 SYNC GND IN | 15 DDC/SCL |

## 13.2 MONITOR

This port relays all signals from the projector to the monitor.




15 PIN HIGH DENSITY DSUB
FEMALE (FRONT VIEW)

| | | |
|---|---|---|
| 1 ANALOG R OUT | 6 ANALOG R GND OUT | 11 NOT USED |
| 2 ANALOG G OUT | 7 ANALOG G GND OUT | 12 DDC/SDA |
| 3 ANALOG B OUT | 8 ANALOG B GND OUT | 13 HSYNC OUT |
| 4 RESERVED | 9 RESERVED | 14 VSYNC OUT |
| 5 GND | 10 SYNC GND OUT | 15 DDC/SCL |



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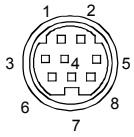
### 13.3 MOUSE

This port is used to relay mouse signals (Serial RS 232, PS/2 and Mac) from the projector to the computer.




8 PIN MINIDIN
FEMALE
(FRONT VIEW)

| | |
|---|---|
| 1 MAC ADB | 5 NOT USED |
| 2 PS/2 CLOCK | 6 RS232 RXD |
| 3 PS/2 DATA | 7 RS232 CTS |
| 4 RS232 TXD | 8 GND |

### 13.4 AUDIO

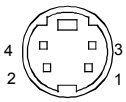
This port is used for computer sound input.

3.5 mm
JACK
(FRONT VIEW)

| | |
|---|---|
| TIP | RIGHT |
| RING | LEFT |
| STEM | COMMON |

### 13.5 S-VIDEO*

This port is used as S-video input.




4 PIN MINIDIN
FEMALE
(FRONT VIEW)

| | |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | LUMA |
| 4 | CHROMA |

### 13.6 VIDEO (YELLOW)*

This port is used as composite video input.

PHONO / RCA
FEMALE
(FRONT VIEW)

| | |
|---|---|
| STEM | COMPOSITE |
| SHIELD | GND |

### 13.7 LEFT AUDIO (WHITE)*

This port is used as left audio input for video sources.

PHONO / RCA
FEMALE
(FRONT VIEW)

| | |
|---|---|
| STEM | LEFT |
| SHIELD | COMMON |



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### 13.8 RIGHT AUDIO (RED)*

This port is used as left audio input for video sources.

PHONO / RCA
FEMALE
(FRONT VIEW)

| | |
|---|---|
| STEM | RIGHT |
| SHIELD | COMMON |

* Video version only



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# 14 ENVIRONMENTAL HANDLING

Care has been taken in the manufacture of this projector so that environmental stress and pollution has been minimized. No CFCs are used during the manufacture of the unit. Where possible, recyclable materials have been used to minimize the environmental impact.

The delivery packaging can be recycled without further ado.

With respect to the projector unit itself, thought should be given to the eventual disposal of the unit in the most environmentally friendly manner considering the mechanical, electronic and chemical components inside. If possible, return the unit to a speciallized company handling electronic waste.



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# 15 FCC STATEMENT

This equipment complies with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class A limits may be attached to a computer that complies with Class A limits. When connecting to a peripheral device, a shielded input/output cable is required to ensure compliance with FCC rules. The shielded cable that must be used is supplied with the equipment. Operation with non-certified peripherals or non-shielded cables is likely to result in interference to radio and TV reception.

This equipment generates and uses radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the projector with respect to the receiver.
- Plug the equipment to a different outlet so that equipment and receiver are on different branch circuits.
- Fasten cables using mounting screws to ensure adequate EMI control.

You may require the following booklet from the Federal Communications Commission (FCC): "How to identify and resolve radio and TV interference problems", available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.



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